Ontario

CENTRAL EXPERIMENTAL FARM.

DEPARTMENT OF AGRICULTURE,

OTTAWA, - - - CANADA.

BULLETIN No. 17.

CHERRIES.

NOVEMBER, 1892.

To the Honourable

The Minister of Agriculture.

Sir,—I beg to submit herewith for your approval, the seventeenth Bulletin from the Central Experimental, Farm which has been prepared under my direction by Mr. John Craig, Horticulturist of the Experimental Farm. The subject of this Bulletin is Cherries, and in it there is given much information regarding the hardier and more promising sorts which have been tested in the cherry orchard at the Central Experimental Farm, and especially in reference to those varieties which have been brought to America within the past few years from Northern Europe.

From the information here submitted, it would appear that there are among the newer cherries tested, varieties of special merit as to hardiness, vigour of growth and quality of fruit, which should now be disseminated and tried in a more general way. With the view of assisting to bring about this desirable end, buds of these cherries have been freely distributed during the past season among Canadian nurserymen and fruit growers, and a similar distribution will be made on application during the propagating season of 1893. It is hoped that through this action young trees of those sorts most desirable, may soon be available to the public through the usual channels of trade, and that thus a desirable impetus may be given to cherry growing throughout the Dominion, and especially in those districts, where the winters are unfavourable for the growth of the more tender sorts.

The illustrations used in this Bulletin have been engraved especially for this publication from photographs of the fruit taken under the personal supervision of Mr. Craig.

I have the honour to be

Your obedient servant,

WM. SAUNDERS,

Director.

CENTRAL EXPERIMENTAL FARM.

———:o:———

DEPARTMENT OF AGRICULTURE,

OTTAWA, - - - - - CANADA.

CHERRIES.

By JOHN CRAIG, *Horticulturist.*

The aim of this bulletin is to draw attention to a class of cherries, containing a number of varieties which appear to possess much value for those sections of the Dominion, where by reason of the severity of the climate, sweet cherries cannot be grown profitably. The varieties mentioned hereafter are in the main personal selections, made by Prof. J. L. Budd of the State Agricultural College, Ames, Iowa, and the late Charles Gibb of Abbotsford, Quebec, when inspecting the fruits of East Europe in 1882. Importations followed in 1883. The writer was afford d an opportunity of studying the merits of the individuals of this class of cherries at Ames, between 1886 and 1889. The cherry orchard at the Central Experimental Farm where the varieties described have, for the past three years, been under my observation, was planted by Mr. W. W. Hilborn in 1888. Some of the trees were purchased from Stone & Wellington of Welland, and D. W. Beadle of St. Catherines, Ont.; J. M. Fisk of Abbotsford, Que., and Ellwanger & Barry of Rochester, N.Y.; but the larger number were obtained from Prof. Budd of Iowa and the late Mr. Chas. Gibb of Abbotsford, Que. During the spring of 1887, it was my privilege under direction of Prof. Budd to select the varieties which were sent from Iowa to the Experimental Farm. The Iowa trees were all propagated by root grafting, using Mahaleb or Mazzard stocks,—principally the

latter. The soil of the cherry orchard at Ottawa is a light, well drained sandy loam, having a stiff sub-soil, composed of gravel and clay. The trees were planted 20 feet apart each way. The inter-spaces have been cropped every year, except a space of from four to six feet which was left on each side of every row of trees. These strips have been cultivated annually up to mid-summer with a one horse cultivator; an occasional light hoeing afterwards has prevented weeds from going to seed. The manuring has consisted of one application of barnyard manure in 1888, and a dressing of unleached wood ashes, at the rate of 125 bushels to the acre, in the spring of 1890. This treatment has been productive of a healthy, vigorous growth, and seems to have promoted early fruitage. The first specimens of fruit were picked in 1890. The increase in quantity and variety has been rapid, forty varieties having fruited the past season, many of them yielding full crops. Thus far the trees have been entirely free from black knot. It is not intended at this time to make a scientific classification of the varieties herein described.

Considered from a commercial aspect, cultivated cherries belong to one of two groups, which are outlined more or less roughly. Group I. includes Heart and Bigarreau cherries; rapid growing varieties attaining large size, having much larger leaves than the next group, and bearing fruit, sweet and tender, as well as firm fleshed. The varieties of this class as a rule are not reliable where the climate is so severe as to prohibit peach culture.

Group II. includes Duke and Morello cherries. Formerly the distinctive lines dividing the Duke from the Morello varieties were drawn with considerable accuracy, but the rapid multiplication of varieties from seed, the probable product of natural crosses, has complicated classification so much, that of late years these two families have been generally grouped under one heading The Dukes as a class are upright growers, with rather stout branches and leaves of moderate size, while the typical Morellos are round topped, with smaller leaves and slender branches more or less drooping. Intermediate forms are numerous, and it is a matter of some difficulty at the present time to assign to each new variety its true position.

A very interesting account of Russian and German cherries, illustrating methods of propagation and cultivation, was published

by the late Mr. Gibb in the Eighth Report of the Montreal Horti cultural Society. Writing of the Vladimir, as grown in Central Russia, he states that it grows in "bush form, and when it becomes too old to bear profitably, the older parts are cut away and new sprouts take their place. It is usually grown in sod, and under such lack of culture brings good returns, hence its great value to us as a tree for careless cultivators. It may be grown from seed, as it often is, but as it varies somewhat, it is better to propagate from the best sorts by sprouts. Sometimes, though rarely, it is grafted. Some trees are erect in growth, others weeping. Both forms are widely scattered. Some have red flesh, but as a rule the flesh is deep purplish red; the skin, when fully ripe, is reddish black, and later, when almost over-ripe, a rich mingling of acid and sweetness; when quite over-ripe it loses its acidity and combines with its sweetness somewhat of the peculiar bitter of the commoner kinds of Guigne." This is quoted to draw attention to, and keep in mind, the manner of propagation of these varieties in their native home. What ultimate effect propagation in this climate by root grafting and budding will have on them cannot at present be conjectured. As a first effect the size of the tree seems considerably increased beyond normal dimensions. While relatively many may correctly be classed as dwarfs, yet it can be said that grafted varieties in this climate, after five years' growth, have attained a greater size than Mr. Gibbs' description would lead us to believe was reached in Russia by the oldest seedling trees.

It is unsafe on the strength of the results of a trial of a few years, to unqualifiedly recommend any of our tree fruits, the actual value of which can only be correctly determined by the experience of many years. The opinions here advanced should be considered tentative until confirmed or modified by later experience. Further investigation may reduce the number of varieties by showing that some here noted are not sufficiently distinct to warrant a separation from others which they closely resemble. At this time it is thought best to note such doubtful individuals separately.

The illustrations made use of are from photographs, taken natural size, of fruit grown either at the Central Experimental Farm, Ottawa, or at Abbotsford, Quebec.

AMARELLE HÂTIVE. (*Early Amarelle.*)

Received from Prof. Budd in 1887. It has made fair growth and thus far has not been injured by the cold of winter. It began fruiting in 1890, bearing the present year a full crop. Fruit large, obtusely heart shaped, with suture fairly well defined. (See Fig. 1). Skin dark red, stalk long, slender, set in a deep cavity. Flesh well tinged with red, quite rich and juicy. Pit, medium to large. Quality

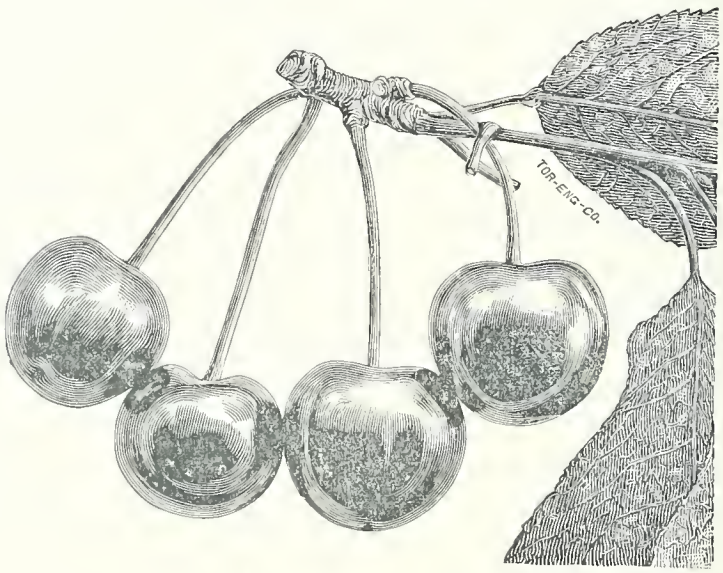

Fig. 1.—AMARELLE HATIVE.

good. Ripe this year July 10th. This variety would appear to be valuable on account of earliness and productiveness. The name would indicate French origin, but it does not appear in "Guide Pratique" of Frères Simon-Louis of Metz, Germany.

BESSARABIAN (*No. 62 of Prof. Budd*). This variety is said to belong to a race believed to have been introduced from Central Asia. Fruit medium to large, generally produced in pairs, bright red, considerably flattened sidewise and at the apex. Stalk long slender, set in a deep cavity. Flesh firm, dark red, sharply, sub-acid, without astringency when fully ripe. Pit small and round. Ripens here the first week in August. Tree a free grower, somewhat spreading, leaf medium to small, oval coarsely toothed. Strictly hardy. Crown grafted on Mahaleb, this variety makes a rapid growth and seems to find the stock congenial.

BRUSSELER BRAUN. (*Brune de Brusselles, Ratafia of Hogg*). As fruited here this corresponds to the description by Mr. Gibb,

who saw it in bearing in Germany. Fruit large heart-shaped inclined to spherical. Skin dark red, almost black. Stalk about 2 inches in length, set in a moderately deep cavity. Flesh firm, highly colored, quite acid, closely resembling Schatten Amarelle. Ripe this year August 10th. Mr. Gibb says on account of its large size and good colour it sells in the Warsaw market at one-fourth more than Ostheim. Tree a free open grower, fairly hardy.

Carnation.—This is noted by Dr. Hogg as one of the oldest varieties of the red Duke family in cultivation, it has succeeded admirably on these grounds, the tree being hardy and very productive. Fruit medium to small, round. Flesh firm, without much juice Ripens towards the end of July. It should receive a trial on light soil where Richmond fails.

Cerise d'Ostheim.—As fruited here this is not equal to Minnesota Ostheim, although Prof. Budd speaks highly of it at Ames. Fruit of medium size lacking the firmness of the Ostheim, and ripening a few days later, somewhat astringent.

Double-Glass (*Doppelte Glas*).—A very distinct type of tree of upright habit, with thick twigs and large prominent buds. Fruit of the largest size, heart shaped with a deep suture. Stalk thick 1 to 1½ inches long. Flesh yellow and firm, juice uncolored. Ripens towards the end of July. The above notes were made on fruit grown at Abbotsford, Que., where the tree was planted eight years ago. At Abbotsford it is not strictly hardy. Worthy of trial in Southern Ontario.

Fouchès' Morello.—Fruit medium to large, obtusely heart shaped, stalk long, slender; skin bright red, semi-transparent. Flesh moderately firm, very juicy, good quality. Pit small round. Ripe this year July 15th, four or five days after Amarelle Hâtive. Tree a small compact grower, hardy. Worthy of trial in all cherry growing districts.

Frauendorfer Weichsel.—This is recommended by Prof. Budd as a tree both hardy and productive. As fruited here it has been of small size and only medium in quality, ripening the last week in July. It may be valuable in the colder districts.

Griotte du Nord (*Northern Griotte*).—Introduced by Prof. Budd from Silesia. Fruit usually borne in pairs, medium to large spherical, skin dark red; stalk long slender. Flesh highly colored, juicy, rather acid but pleasant; pit of medium size. This description

coincides with that given by Freres Simon Louis, in "Guide Pratique." Tree a slow grower of compact habit. Hardy.

Griotte d'Ostheim appears to be so closely allied to Ostheim as to render a description unnecessary. At Abbotsford it matures four or five days earlier, and is perhaps a little finer in quality.

Fig. 2.—Griotte Imperiale.

Gros Gobet (*Montmorency à courte queue*).—Not hardy at Ottawa, but should be valuable as a canning cherry in Southern Ontario. Fruit large, borne in clusters; oblate with a deep suture extending from apex to stem cavity. Skin bright red, stalk stout $\frac{3}{4}$ to 1 inch in length with pit firmly attached. Flesh white, tender. For culinary purposes. Ripe the last week in July.

Griotte Imperiale.

Imported from Metz, Germany, by Mr. Chas. Gibb. At Abbotsford this has been a slow grower, hardy and productive ; fruit medium to large, oval in form ; skin, dark red. (See Fig. 2.) Flesh firm and like the juice deeply colored Quite acid with a rich mingling of sweet and sour, ripens about the middle of July. This would seem promising for the Province of Quebec and for Central Ontario.

Lithauer Weichsel.—This has been distributed to some extent by Canadian nurseymen, notably Stone and Wellington, Waterland, Ont., but while a good tree the fruit is inferior in size and quality to many others. Fruit small, round, almost black. Flesh firm, acid. Tree a free grower, fairly hardy. Prof. Budd says, "much grown south-west Russia for drying and cherry wines." Where Vladimir succeeds, this need not be planted.

Lieb.—A Morello variety of Richmond type, ripening a week later in this locality, promising.

Montmorency (*Large Montmorency*)—Fuit medium size, roundish oblate, with marked suture, skin light red, thin and tough, stalk 1 to 1½ inches in length, set in a deep round cavity. Flesh white, tender, juicy, lacking richness ; matures the last week of July. This variety is thought by Dr. Hogg to be a synonym of *Montmorency à courte-queue*. As grown here it is, however, distinct. In some sections it is superseding Early Richmond. Tree fairly hardy and productive.

Minnesota Ostheim.

Speaking of the *Ostheim*, Mr. Gibb said, "I am told by Director Stoll of Proskau, that this is a native of the Sierra-Nevada Mountains, in Spain, where it was found at elevations of 5,000 and 6,000 feet, and that it was brought to Germany in 1687 by a German Professor, who grew it in the neighbourhood of the town of Ostheim, whence its present name." That a number of varieties are represented by the family name Ostheim there is little doubt. Neither at Abbotsford, nor on these grounds have Griotte d'Ostheim, Cerise d'Ostheim, nor the Ostheim, now found in trade catalogues, equalled in quality or productiveness the variety above mentioned. It seems to have been introduced from Germany by Mr. E. Myer, who settled at St. Peter, Minnesota, and brought with him sprouts of this cherry. (Iowa Hort. Soc.

Report, 1881, p. 371.) Fruit much larger than Richmond, obtusely heart shaped ; sature obscurely marked ; skin dark red ; when fully ripe a brownish black ; (see fig. 3) stalk two or more inches in length ; flesh tender ; deeply colored ; quality good ; pit medium to large ; productive ; maturing from July 15th to 25th. Tree of the round topped, half dwarf Morello type. This is recommended with a considerable amount of confidence in its future success.

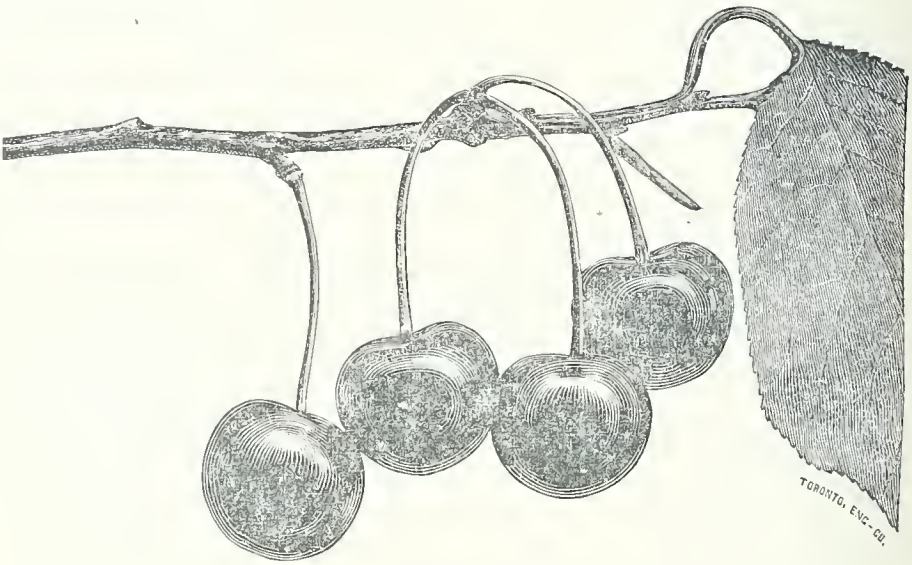

Fig. 3.—Minnesota Southern.

No. 18, Riga. This was introduced by Prof. Budd, from Riga, Russia. Fruit large, heart shaped, dark red ; stalk long, slender ; flesh firm, juice colored, pit small ; quality good ; ripening about July 12th ; an attractive variety combining many good points. Tree resembles Ostheim but is a slower grower.

Orel, No. 25.

Prof. Budd obtained from Orel, Russia, several varieties under number; these have been sent out in the same way. Varieties on trial include Nos. 23, 24, 25, 26 and 27. The following description applies to Orel No. 25, (see fig. 4) which appears to be the most valuable. Fruit borne singly or in clusters, large, heart-shaped; skin light red ; juice uncolored ; stalk an inch to an inch and a half long ; flesh tender, very juicy, sub-acid ; pit medium to small ; ripe this

year the first week in August, but fruit allowed to remain on the tree was in good condition August 15th. Tree is a vigorous upright grower, hardy ; an important addition to our late cherries.

Ostheim.—See *Minnesota Ostheim.*

Olivet. This appears to have been introduced by American nurserymen from France. Evidently belonging to the Duke tribe. It is not yet well known. Fruit large, oblate, borne in large clusters ; bright red ; flesh firm ; juice uncolored ; quality medium to good. A very attractive variety apparently as hardy as Early Richmond.

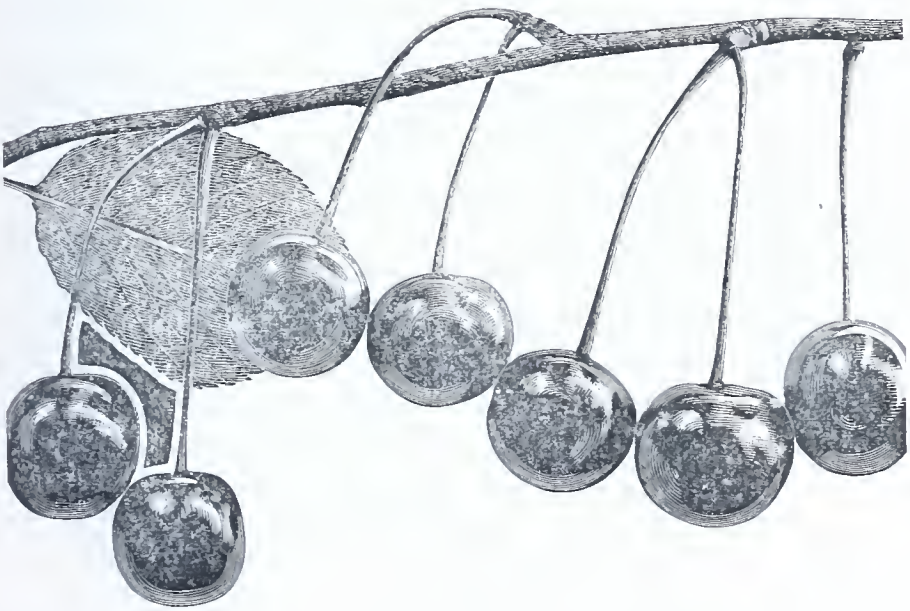

Fig. 4.—Orel No. 25.

Strauss Weichsel.—The name of this variety should be abbreviated to *Strauss.* Trees on the Experimental Farm were obtained from Mr. Gibb in 1889. Fruit medium to large, a rich dark red, roundish, flattened at both ends; stalk short set in a shallow cavity ; flesh dark red, firm, juicy and sprightly with slight astringency ; pit small ; very good. Tree a small upright grower with leaves medium to small, moderately hardy.

Späte Amarelle.

Although the name indicates late, yet it is one of the earliest varieties in the collection, ripening this year with *Amarelle Hâtive*, which it resembles so closely as to render description unnecessary. The tree is a model in point of vigour and hardiness. (See Fig. 5).

Fig. 5.—Spate Amabelle.

Schatten Amarelle. (*Shadow Amarelle.*)

Prof. Budd remarks that it is much like the last. The resemblance is certainly very close, but Schatten Amarelle (see fig. 6) is fully two weeks later in ripening its fruit; the juice too is colorless. Ripe this year August 5th. Tree a vigorous grower, maintaining a round topped habit. This is one of the most promising late cherries on trial.

Vladimir.—(See Fig. 7).

This variety attracted the attention of Mr. Gibb when in Russia more than any other. He said: "First in importance are

the cherries known all over Russia under this name. It has been named Vladimir, I suppose, because in that Government its culture has attained such vast proportions." This variety was distributed to the members of the Ontario Fruit Growers Association some years ago. That the tree is perfectly hardy has been conclusively demonstrated. In many sections, however, especially on clay soil, while the trees have blossomed freely, as a rule the fruit has not set well. Budded on Mahaleb and grown as a standard, with a stem four feet high, as propagated by Messrs. Stone & Wellington,

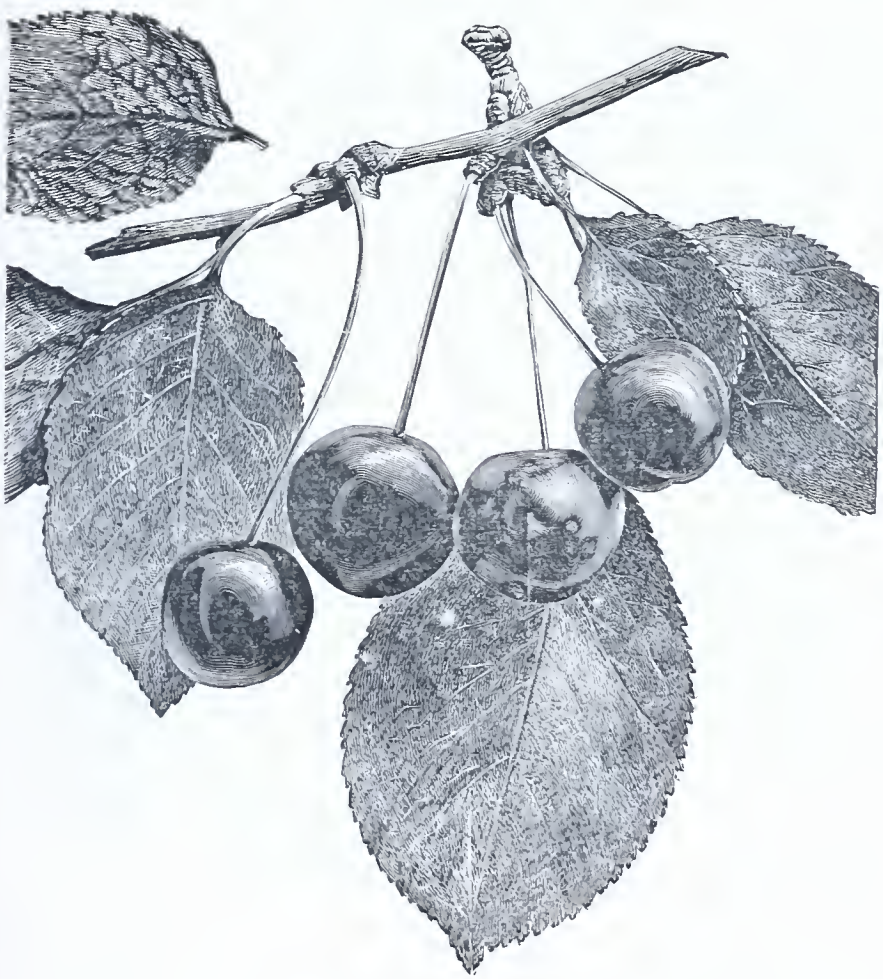

Fig. 6.—Schatten Amarelle.

Welland, Ont., it has been very fruitful on these grounds. Fruit medium to small, borne in clusters containing from two to four

fruits. Skin nearly black. Flesh firm, with a sprightly acidity. Stalk of medium length; pit round and rather large. Leaves obovate sometimes acuminate; irregulary toothed. Fig. 7 shows fruit a little above natural size.

Canadian grown seedlings from the Vladimir are now growing in Ottawa and may show a more perfect adaptation to our climatic conditions than the original stock.

Fig. 7.—Vladimir.

Weir's Cherries.—A number of seedlings produced by Mr. D. B. Weir, at Lacon, Illinois, have been on trial the past four years, but insufficient data prevents notes or descriptions being given at the present time.

Wragg.

Mr. John Wragg of Waukee, Iowa, informs me that this appeared as a sprout among a lot of Morello cherries purchased from Messrs. Ellwanger & Barry, Rochester, N.Y., twenty or more years ago. Its hardiness and productiveness attracted his attention. It has now become widely disseminated, and is doing well in many sections. Two of the three trees planted here have been injured by winter. In appearance and season the fruit resembles English Morello quite closely, ripening this year the first week in August. (See Fig. 8).

Fig. 8.—Wragg.

Varieties Recommended.

With present experience the following varieties are recommended for trial, and will probably prove valuable in those sections where

elimatie eonditions permit the eultivation of the pear : *Amarelle Hâtive*, *Strauss*, *Griotte Impériale*, *Olivet*, *Gros Gobet*.

The following list eomprises varieties which appear to grade in hardiness with the Wealthy apple:

Späte Amarelle, *Fouchès' Morello*, *Minnesota Ostheim*, *Brusseler Braun*, *Orel 25*.

Among those of exceptional hardiness, and whieh should be tested along the northern border of the apple belt are : *Riga No. 18*, *Vladimir*, *Bessarabian* and *Schatten Amarelle*.

Propagation.

Budding.—Cherries are propagated for eommereial purposes almost entirely by budding. This consists in transferring a single bud of the desired variety to the stock or branch upon whieh it is to grow. The operation is usually performed during the month of August when (using a nurseryman's phrase), "the bark slips." It is effected by slicing a well ripened bud from a twig of the growth of the same season, and inserting it under the bark of the stock, where it is securely tied. If the operation is successful all the top above the inserted bud is cut off the following spring. By rubbing off and preventing the formation of other wood the whole growth of the stock is directed into this ehannel. In this way trees of suitable size for orchard planting are produced in two seasons. In the Western States where the snow fall is limited, some objections have been urged against this method of propagation on the ground of the prevalence of root injury, to the more or less tender stocks. In regions of abundant snow fall, as in the Province of Quebec and Eastern Ontario, this objeetion does not earry the same weight.

Crown Grafting.

Root grafting as ordinarily praetised when applied to the propagation of the cherry is attended with little success.

Crown grafting, which is inserting the scion in the erown or eollar of the stock, at or a little below the surfaee of the ground, is in the experience of the writer a much more successful method. This may be done in winter, using stocks which have been stored for the purpose ; or early in spring upon sto ks already established, and undisturbed in the ground for a year. Prof. Budd claims satisfaetory results when the stoeks are taken up in the Autumn and grafted in

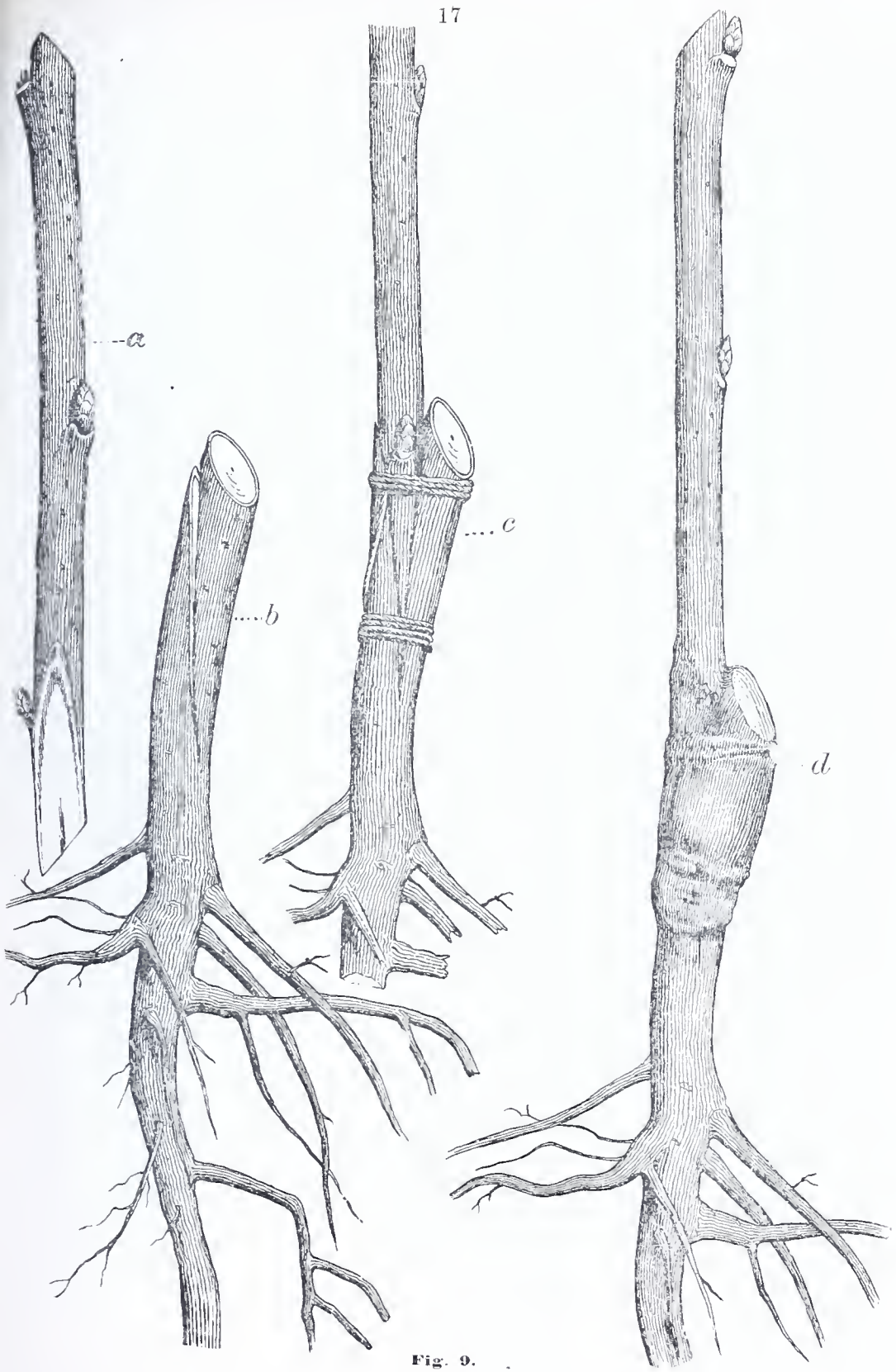

Fig. 9.

the graft room during winter. Careful comparisons have been made here for the past three years with a view to determine which plan was attended with the best results. The average returns show a gain of over fifty per cent, in favor of *crown grafting*, early in spring, upon stocks in the ground, which had been planted the year previous. A strong growth is obtained the first year, at the end of which the graft may be taken up, and part of the old root cut away. The yearling graft may then be replanted setting it deeper than formerly, so that the scion is brought under ground and offered conditions favourable to the emission of roots. The principal objection to the method is that at the time—early in spring—when this work should be performed, many other duties engage the attention of the fruit grower making it difficult to accomplish in a limited time a large amount of this kind of grafting. The method is one however, that can always be practised to some extent. It will prove of special service to amateurs for whose benefit the following instructions are given :

The stocks should be planted in nursery rows the year previous to the date of grafting. Cut well matured scions in autumn of the growth of the same season, keep these in a dormant condition over winter by packing in forest leaves, or damp sawdust. In this locality the best time for out-door grafting is usually during the first two weeks of April. Figure 9 illustrates the method of crown grafting the cherry, as usually conducted in the graft room ; (a) shows the scion cut wedge shape, (b) the stock with a slanting cleft for the reception of the scion, (c) the scion in position, firmly bound with waxed thread, and (d) illustrates the joint completed by a covering of grafting-wax, to exclude the air.

In the case of out door work the process is essentially the same, except in the manner of tying. Instead of binding first, and waxing afterwards, a firmer joint is made by applying the wax first, and covering this with a cotton bandage which adheres to the wax, and holds the scion in position. It must be remembered in the case of stocks which are in the ground, that the top is cut off at the point indicated in the figure as soon as the scion is inserted, after a little practice this is easily removed by an upward cut, which can be made without disturbing the scion.

Stocks.

The Mazzard cherry (*Prunus avium*) is probably used by nurserymen more than any other as a propagating stock. It is a native of Europe, and is supposed to have given rise to many of our cultivated varieties. All varieties of cherries unite with it readily.

The Mahaleb cherry (*Prunus mahaleb*) is used to a considerable extent, partly on account of its dwarfing tendency, and also because of its adaptability to clay soils, as pointed out by Professor Bailey. (See Bulletin on Native Plums and Cherries.)

The Morello stock (*Prunus cerasus*) has not been largely used by nurserymen chiefly owing to its sprouting habits. It is hardy, however, and can be frequently procured by amateurs, when Mahaleb or Mazzard are not easily obtained.

Wild Red or Bird Cherry (*Prunus Pennsylvanica*) has been successfully used as a budding stock for some years by several experimenters, but its ultimate value for this purpose has not been definitely determined. Most varieties seem to unite with it as readily as with Mazzard. Budded trees of many varieties on this stock in the trial grounds of the Central Farm are making a vigorous growth, apparently having made a perfect union. The ease with which seed of this species can be procured in nearly all parts of the Dominion, as well as its great hardiness, should render it a popular stock for cold climates.

Propagation by Root Cuttings.

When cherries are on their own roots, as when grown from sprouts, they may be multiplied by means of root cuttings. The surface system of roots,—those nearest the top of the ground,—are used for this purpose. These are taken up in the autumn and cut into three-inch lengths, packed in boxes with earth and stored in a cool cellar till spring. When the ground is in proper condition the cuttings are planted in rows, sticking them in a slanting position and covering completely, so that the top end is about an inch below the surface of the soil. Several shoots will usually start; the strongest should be trained up to form the future stem, and all others broken off. Where greenhouse facilities are available, the cuttings may be started during winter with gentle bottom heat in the propagating bench, and set in nursery rows the following spring.

Grafting Wax.

Many receipts are offered for the manufacture of grafting wax. A satisfactory wax for out-door use is made by melting together 5 parts resin, and 2 parts beeswax; to this is added $1\frac{1}{2}$ to 2 parts linseed oil. For winter use in the grafting room the same amount of resin with less oil and beeswax, makes a wax more suitable for indoor application.

A liquid grafting wax is made by melting together 1 lb. white resin and 1 oz. beef tallow; to this, when removed from the fire and partly cooled, 8 ounces of alcohol is added, stirring in slowly. This should be kept in closed cans to prevent the alcohol evaporating.

ERRATA:

Page 10, line eight, Fig. 3: For "Minnesota Southerin," read "Minnesota Ostheim."

Page 12, line seven, Fig. 5: For "Spate Amabelle," read "Späte Amarelle."